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INDEX OF ROCK MECHANICS RESEARCH REPORTS, CANMET/MRL, 1964-1984

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MINING RESEARCH LABORATORIES

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INDEX OF ROCK MECHANICS RESEARCH REPORTS, CANMET/MRL, 1964-1984

by

David G. Hedley* and John E. Udd**

ABSTRACT

A total of 251 reports on underground hard rock mining, prepared by staff of the Mining Research Laboratories during the period from 1964 to 1984, are listed. The bibliography is organized into eleven subject categories ranging from rock testing and classification, through modelling, mining methods and bulk mining, to rockbursts and seismicity. Within each category the reports are listed in chronological order.

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RÉPERTOIRE DES RAPPORTS DE RECHERCHE SUR LA MÉCANIQUE DES ROCHES, CANMET - LRM, 1964-1984

par

David G. Hedley* et John E. Udd**

RÉSUMÉ

On a dressé une liste de 251 rapports sur l'exploitation minière souterraine de roche dure, préparés par le personnel des Laboratoires de recherche minière au cours de la période allant de 1964 à 1984. La bibliographie est divisée en 11 catégories par sujets allant de l'étude et la classification des roches, de la mise au point de modèles, de méthodes d'exploitation minière et d'exploitation minière en vrac aux coups de toit et l'activité sismique. De plus, à l'intérieur de chaque catégorie, les rapports sont inscrits dans l'ordre chronologique.

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INTRODUCTION

This report contains listings, in eleven selected categories, of all of the rock mechanics research reports relevant to underground hard rock mining which have been issued by the Mining Research Laboratories of CANMET during the period 1964-1984. Other reports written during these two decades which apply to both soft rock and open pit mining have been excluded.

For purposes of organization the reports have been listed chronologically according to the following categories:

Rock Testing and Classification.
Stress Measurements and Instrumentation.
Other Instrumentation.
Structural Geology.
Modelling (Mathematical, Physical, Computer).
Support Systems.
Room-and-Pillar Mining (Elliot Lake).
Cut-and-Fill, Including Backfill Testing.
Bulk Mining (Sudbury, Algoma, Kidd Creek).
Rockbursts and Seismicity.
Textbooks and State-of-the-Art Reviews.

In all, 251 reports are included in the lists.

ROCK TESTING AND CLASSIFICATION

1. Ladanyi, B. "Uniaxial testing of rocks for classification purposes"; FMP 64/141-MRL.

2. Parsons, R.C. "Uniaxial compression tests for Black Hawk Mining Limited"; FMP 64/166-MRL.

3. Larocque, G.E. "Determination of the dynamic tensile strength of a series of magnetite specimens from Carol Lake, Labrador"; FMP 65/9-MRL.

4. Parsons, R.C. and Sullivan, J.D. "Uniaxial study results of Nordic quartzite and conglomerate"; FMP 65/28-MRL.

5. Parsons, R.C. "Petrology and deformational behaviour of the Director Mine rock types"; FMP 65/55-MRL

6. Barron, K. "Loading tests on the Wabana model report No. 11, Final Report"; FMP 65/108-MRL

7. Parsons, R.C. and Sullivan, J.D. "Moduli determination for the Elliot Lake stress relief over-coring work"; FMP 65/137-MRL

8. Coates, D.F. and Gyenge, M. "Plate load testing on rock for deformation and strength properties"; ASTM Rock Mech Symp, Seattle, Dec 1965.

9. Coates, D.F., Parsons, R.C. "Experimental criteria for classification of rock substances"; Int J Rock Mech & Min Sci Vol 3, 1966.

10. Parsons R.C. and Hedley, D.G.F. "The analysis of the viscous property of rocks for classification"; Int J Rock Mech & Min Sci, Mar 1966.

11. van Heerden, W.L. "Loading tests on core discs obtained from in situ stress relieving tests"; FMP 66/119-MRL.

12. Parsons, R.C. "Triaxial test results on Carol Lake Ore"; FMP 66/129-MRL.

13. Zahary, G. "Modulus of rigidity from pressuremeter tests"; May 1967; MRC IR 67/11.

14. Yu, Y.S. "Diametrical Compression tests for the Elliot Lake strain-relief overcoring work"; May 1967; MRC IR 67/13.

15. Parsons, R.C. "Testing the size-effect on strength of the Elliot Lake quartzite"; MRC IR 68/46-ID.

16. Hedley, D.G.F., Herget, G. "Preliminary rock mechanics investigations at Gaspé Copper Mines Ltd"; MRC IR 68/72-ID.

17. Kostak, B. "Size effect in Elliot Lake quartzite"; MRC IR 68/89-LD.

18. McRae, A. "Rock tests in conglomerate, Elliot Lake, Ontario"; MRC IR 69/35-ID.

19. Kostak, B. "Strength distribution in Elliot Lake quartzite"; MRC IR 69/114-ID.

20. Cruden, D.M. "A Theory of the static fatigue of rock under uniaxial compression"; MRC IR 69/123-ID.

21. Cruden, D.M. "The recovery of pennant sandstone from a uniaxial compressive load"; MRC IR 70/11-ID.

22. Herget, G. "Shear strength of some chlorite coated shear planes and some extension fractures in the siderite orebody at G.W. MacLead Mine"; MRC IR 70/24-ID.

23. Coates, D.F. "Report of the general reporter for theme I intrinsic properties of rock masses"; MRC IR 70/50-LD.

24. Zorychta, H. "Mechanical rock breakage in situ progress report no. 1"; MRC MR 70/66-ID.

25. Barron, K. "Brittle fracture and ultimate failure of rocks, Part I. isotropic rocks. IJRMMS 8 6, 541-51, November 1971"; MRC MR 70/67-ID.

26. Paulmann, H.G. "Strength anisotropy of rocks, investigation of rock of the "Ruhr-Karbon"; MRC IR 70/76.
(Translation of headings, figure captions and definition of symbols in equations by G. Herget)

27. Barron, K. "Brittle fracture initiation in and ultimate failure of rocks Part II: Anistropic rocks - theory"; MRC IR 70/86-LD.
(For publication in International Journal of Rock Mechanics and Mining Sciences. 553-563).

28. Barron, K. "Brittle fracture initiation in and ultimate failure of rocks Part III. Anisotropic rocks - experimental results"; MRC IR 70/87-LD.
(Int J Rock Mechanics and Mining Sciences 565-575).

29. Herget, G. "Determination of elastic strain recovery in five inch diameter drill core subsequent to coring"; MRC IR 70/92-ID.

30. Sage, R. "Survey of physical mineralogical characteristics of underground mines in Canada"; MRC IR 72/10.

31. Herget, G. "A cylindrical pressure vessel for testing 10 in. diameter specimen under a confining stress of up to 6000 psi"; MRC IR 72/24.

32. Herget, G. "Rock properties"; MRC IR 73/44.

33. Herget, G. Unrug, K., Capozio, N. "Shear strength and failure strains of geological and artificial fractures in siderite under triaxial conditions"; MRC IR 73/61.

34. Sage, R., Coates, D.F. "Survey of physical mineralogical characteristics of underground mines in Canada"; MRC IR 73/67. (Mines Branch IC 306 13/VIII/1973).

35. Everell, M.D., Herget, G., Sage, R., Coates, D.F. "Supplementary report to theme 1 mechanical properties of rocks and rock masses"; MRC IR 73/102.

36. Herget, G., Miles, P. "Triaxial shear tests on joints and sawcuts in Rock samples from an iron ore open pit"; MRC IR 73/131.

37. Gyenge, M., Coates, D.F. "Suggested method on field deformability determination using plate test (surficial loading)"; MRC IR 74/17. (ISRM Commission on Standardization of Laboratory and Field Tests).

38. Miles, P., Herget, G. "Shear resistance of geological fractures in weathered and fresh rock"; MRC IR 74/137.

39. Zahary, G., Lee, H. "Mechanical properties of a Gaspé rock"; MRP/MRL 75-16.

40. Herget, G., Unrug, K. "Strength of mine pillars from laboratory tests"; MRP/MRL 75-40.

41. Miles, P., Herget, G. "Uniaxial compressive strength from point loadtests"; MRP/MRL 75-46.

42. De Korompay, V. "Effect of blasting on rock fissuration"; MRP/MRL 75-54.

43. Miles, P. "Standard triaxial compression tests on WN1 granite core specimens"; MRP/MRL 79-18(TR).

44. Herget, G., Miles, P. "Shear strength of geological discontinuities with material bridges"; MRP/MRL 79-76(J).

45. Larocque, G. "Methodology overview - rock mechanics rock properties"; MRP/MRL 81-144(OP).

46. Gyenge, M., Gorski, B., Shimotani, T. "Strength determination of rocks at Copper Cliff South Mine"; MRP/MRL 82-8(TR).

47. Gyenge, M. "Laboratory test for post-failure strength properties of rocks"; MRP/MRL 82-33(TR).

48. Molson, J. "Development of a Uniaxial stiff testing procedure"; MRP/MRL 82-38(TR).

49. Gorski, B. "The design and operation of a stiff triaxial assembly for post failure rock property testing"; MRP/MRL 82-81(TR).

50. Molson, J. "Stiff triaxial tests on Copper Cliff South Mine orebody rock"; MRP/MRL 82-141(INT).

51. Swan, G. "Some results from controlled testing by stiffening element in the 18MN press"; MRP/MRL 83-5(TR).

52. Swan, G., Zonggi, S. "Prediction of shear behaviour of joints using profiles"; MRP/MRL 84-58(J).
(to be submitted for publication in Rock Mechanics & Rock Engineering).

53. Swan, G., Vaillancourt G., Tirrul, L. "Shear resistance of Selbaie Mine joints"; MRP/MRL 84-96(TR).

54. Udd, J.E., Wang, H. "A comparison of some approaches to the classification of rock masses for geotechnical purposes"; MRP/MRL 84-97(TR).

STRESS MEASUREMENTS AND INSTRUMENTATION

1. Barron, K. "Glass insert stressmeters"; FMP 64/123-MRL.

2. Grant, F., Coates, D.F. "Field trials during 1963 on the USBM borehole deformation meter"; FMP 64/125-MRL.

3. Barron, K., May, A.N. and Cross, H.E. "The Mines Branch stressmeter"; FMP 65/172-MRL.

4. Yu, Y. "Rock mechanics investigations at MacLeod Mines, 1965. (A preliminary analysis for stress-relief measurements)"; FMP 65/181-MRL.

5. van Heerden, W.L., Szombathy, C., St. Louis, A.V. "A new strain cell installing tool"; FMP 66/37-MRL.

6. Grant, F. "In situ strain measurements with encapsulated 45° Rosette strain gauges, 14 west extension drift, Nordic Mine, Elliot Lake, Ontario"; FMP 66/62-MRL.

7. van Heerden, W.L. "The effect of stress concentrations around boreholes on measurements of absolute stress in rock"; FMP 66/68-MRL.

8. van Heerden, W.L., Grant, F. "A comparison of two methods for measuring stress in rock"; FMP 66/112-MRL.

9. Zahary, G. "An interpretation of field stress measurements"; FMP 66/193-MRL.

10. Grant, F. "Stress Measurements at Elliot Lake - In situ measurements in stope pillars using encapsulated 45° Rosette strain cells. October 1966"; MRC IR 67/9.

11. Udd, J.E. "Stress Measurements in 1109 Pillar, Nordic Mine, Elliot Lake, Ontario, (Aug. 1967)"; MRC IR 67/48.

12. Zahary, G. "Stress measurements Kerr-Addison Gold Mines"; MRC IR 67/51-MRL.

13. Udd, J.E., Grant, F. "Measurements of stresses in the abutment zones, Nordic Mine, Rio Algom Mines Limited"; MRC IR 67/52.

14. Gray, W.M., Toews, N.A. "Analysis of accuracy in the determination of the ground stress tensor by means of borehole devices"; MRC IR 67/23.

15. Grant, F. "Pillar stress measurements in situ with the USBM borehole deformation meter in the Rio Algom Nordic Mine at Elliot Lake"; MRC IR 67/35.

16. Udd, J.E. "Preliminary calculations of stresses in the abutment zones, Nordic Mine, Elliot Lake, Ontario"; MRC IR 68/35-ID.

17. Grant, F. "Field stress measurements with encapsulated Rosette strain gauge technique at Rio Algom Nordic Mine, Elliot Lake, Ontario"; MRC IR 68/49-ID.

18. Zahary, G. "Temperature stability of strain cells"; MRC IR 68/50-ID.

19. Grant, F., St. Onge, J. "The technique used at the Nordic Mine to measure in situ stress with the use of the encapsulated Rosette strain gauges"; MRC IR 68/52-ID.

20. Barron, K. "In situ stress measurement"; MRC IR 68/119-LD.

21. Gray, W.M. "Analysis of data from stress-measurement program at McLeod Mine, Algoma Ore Properties, Wawa, Ontario"; MRC IR 69/11-ID.

22. Gray, W.M. "Analysis of data from stress-measurement program at Falconbridge Nickel Mines Limited, Falconbridge, Ontario. 6050 Level Overcoring - 1968"; MRC IR 69/12-LD.

23. Gray, W.M., Barron, K. "Stress determination from strain relief measurements on the ends of boreholes; planning, data evaluation and error assessment"; MRC IR 69/23-LD (RS 110).

24. Gray, W.M. "Analysis of Data from stress-Measurement Program at Falconbridge Nickel Mines Limited. II-Mean Values and Standard Errors of Calibration Constants from laboratory measurements"; MRC IR 69/106-ID.

25. Millar, W.J.R., Bielenstein, H.U. "Field measurements for elastic-strain-recovery measurements using CSIR strain cells"; MRC IR 70/41-ID.

26. Udd, J.E. "Two interpretations of strain relief measurements in a uranium mine"; MRC IR 70/81-ID.

27. Herget, G. "Determination of three ground stress tensors at the G.W. MacLeod Mine, Wawa"; MRC IR 70/118-ID.

28. Bielenstein, H.U., Barron, K. "In situ stresses"; MRC IR 71/22-ID. (Publ Proc 4th CSR&T and 7th CSRM).

29. Yu, Y.S., Gray, W.M. "Strain equations for the CSIR triaxial strain cell. (September 29, 1971)"; MRC IR 71/41-ID.

30. Herget, G., Hedley, D.G.F. "Rock mechanics instrumentation Part III: stress determinations with overcoring techniques"; MRC IR 71/79-ID.

31. Gray, W.M., Toews, N.A. "Optimization of the design and use of the CSIR triaxial strain cell for stress determination"; MRC IR 71/94. (Published ASTM p 116-134; Field Testing and Instrumentation of Rock STP 554 May 1974).

32. Herget, G. "Variation of rock stresses with depth at a Canadian iron mine"; MRC MR 71/96. (For Publication IJRM & MS 1972, Vol 10; No.1, 37-51. Jan. 1973).

33. Tan, B.K. "An interpretation of field stresses adjacent to selected Canadian mines"; MRC IR 71/107.

34. Herget, G. "First experiences with the CSIR triaxial strain cell for stress determinations": MRC IR 72/58. (Published INT JRMMS,Vol 10, No.6, 509-522, November 1973).

35. Herget, G. "Stress tensor determinations in a bedded lead-zinc orebody"; MRC IR 73/45.

36. Herget, G. "Ground stress determinations in Canada"; MRC IR 73/128.

37. Gray, W.M. "Calibration of triaxial strain cell for stress determination; application to data from the Sullivan Mine"; MRC IR 74/114.

38. Herget, G. "Stress determinations in the Sudbury area"; MRP/MRL 75-22.

39. Herget, G., Oliver, P. "Groundstresses below 3000 Feet"; MRP/MRL 75-56(J).

40. Herget, G. "Field testing of modified triaxial strain cell equipment at Timmins, Ontario"; MRP/MRL 77-2.

41. Miles, P., Herget, G. "Stress determinations at Creighton Mine, Sudbury district, Ontario"; MRP/MRL 77-81(TR).

42 Herget, G., Miles, P., Zawadski, W. "Equipment and procedures to determine the in situ stress field in one drill hole"; MRP/MRL 78-10(TR).

43. Herget, G., Miles, P. "Stress determinations of the heater test site, Copper Cliff, Ontario"; MRP/MRL 78-53(TR).

44. Muir, B. Ambient Temperature calibration of 24 IRAD stressmeters; MRP/MRL 79-106(TR).

45. Herget, G. "Regional stress in the Canadian Shield"; MRP/MRL 80-8(TR).

46. Herget, G. "Regional stresses in the Canadian Shield - a summary"; MRP/MRL 80-55(OP).

47. Herget, G., Zawadski, W. "Improvements to groundstress determinations Part 1: laboratory tests"; MRP/MRL 81-17(TR).

48. Herget, G., Oliver, P. "Pillar stress determinations at Copper Cliff South Mine"; MRP/MRL 82-4(TR).

49. Herget, G. "Change of maximum & minimum horizontal stress components with depth"; MRP/MRL 83-94(INT).

50. Arjang, B. "Field stress determinations at Selbaie Mine, Québec"; MRP/MRL 84-55(TR).

51. Herget, G. "Load assumptions for underground excavations in the Canadian Shield"; MRP/MRL 84-82(J).

52. Arjang, B. "Stress determinations at Stanleigh Mine, Elliot Lake, Ontario"; MRP/MRL 84-119(TR).

OTHER INSTRUMENTATION

1. Larocque, G. "A sonic system for the determination of in situ dynamic properties and for the outlining of Fracture Zones"; (6th US Rock Mech Sym, Rolla Oct 1964).

2. Barron, K. and Cross, H.E. "Some experiments on the creep of photoelastic coatings"; FMP 65/6-MRL.

3. van Heerden, W.L. "A compressometer using differential transformers"; FMP 65/175-MRL.

4. Hedley, D.G.F., Yu, Y.S. and St. Louis, A. "A multi-wire extensometer for axial deformation measurement in long boreholes"; FMP 65/178-MRL.

5. Hedley, D.G.F. "An optical method of measuring the vertical deformation of a pillar"; FMP 66/35-MRL.

6. Hedley, D.G.F., Yu, Y.S., Montone, H.B. "Laboratory calibration of an electrical extensometer"; FMP 66/89-MRL.

7. Yu, Y.S. "Sonic measurements at Nordic Mine, Rio Algom Mines Limited, Elliot Lake, Ontario"; FMP 66/189-MRL.

8. Vanderzee, T.J. "Evaluation of the borehole penetrometer for estimating rock strength"; FMP 66/191-MRL.

9. Hedley, D.G.F. "Laboratory calibration of an electrical-mechanical multi-wire extensometer"; MRC IR 67/12-MRL.

10. Sinclair, B.J. "Sonic velocity and attenuation measurements at Nordic Mines, Elliot Lake, Ontario"; MRC IR 67/53-MRL.

11 Hedley, D.G.F., Zawadski, W. "Laboratory testing of the USBM explosive anchor"; MRC IR 67/56-MRL.

12. Hedley, D.G.F. "Laboratory calibration of the terrametrics Model F-2 extensometer"; MRC IR 68/31-ID.

13. Kostak, B. "A new device for in situ movement detection and measurement"; MRC IR 68/37-ID.

14. Korczynski, P. "Shear strip tests"; MRC IR 68/83-LD.

15. Hedley, D.G.F. "Design criteria for multi-wire borehole extensometer systems"; MRC IR 69/68-ID.
(CIM p 100 for Proceedings Notice; July, 1971).

16. McRae, A. "Horizontal tape extensometer"; MRC IR 69/109-ID.

17. Barron K., Hedley, D.G.F. "Rock mechanics instrumentation - Part IV: rock bolt load cells"; MRC IR 71/80-ID.

18. Larocque, G.E., Kapeller, F., Coates, D.F. "Seismic and bore hole photographic measure"; MRC IR 72/76.

19. Herget, G., Unrug, K. "Instrumentation to determine the influence of roughness on the shear resistance of fracture planes in rock"; MRC MR 72/95.

20. Larocque, G.E., Kapeller, F., Coates, D.F. "Refraction seismic measurements and borehole observations in an open pit"; MRC IR 72/111.

21. Herget, G., Unrug, K. "Four-point borehole strain meter"; MRC IR 72/154.

22. Kapeller, F., Larocque, G.E. "A rock bolt dynamometer system using continuous vibrating wires"; MRC IR 73/36.

23. Larocque, G., Kapeller, F. "A borehole camera"; MRC IR 73/46.

24. Hedley, D.G.F. "Notes on rock movement measured with borehole extensometers"; MRC IR 73/151.

25. Miles, P., Herget, G. "Penetrometer tests in drill holes"; MRC IR 74/43.

26. Hedley, D.G.F. "Mining research at the Kidd Creek Mine, Timmins Part 5: Open Pit and Underground deformation measurements"; MRP/MRL 76-67(TR).

27. Muir, B. "Ambient temperature calibration of 24 IRAD stressmeters"; MRP/MRL 79-106(TR).

28. deKorompay, V. "A vacuum hole monitoring system to detect fractures in mine roof"; MRP/MRL 80-87(TR).

29. Herget, G. "The ST-6 borehole TV system"; MRP/MRL 81-122(TR).

30. Herget, G. "Borehole dilatometer for backfill studies"; MRP/MRL 82-2(TR).

31. Gorksi, B. "The design & operation of a parallel stiff compression apparatus"; MRP/MRL 84-36(TR).

32. Gorski, B. "A multi-shear apparatus"; MRP/MRL 84-44(TR).

STRUCTURAL GEOLOGY

1. Bain, I. "The geological structure and probable rock stress environment in the Quirke syncline and particularly in the Algom Nordic Mine test area, Elliot Lake, Ontario"; FMP 65/106-MRL.

2. Parsons, R.C. "Determination of preferred planes of weakness in geological materials Part I"; FMP 66/122-MRL.

3. Everell, M.D., Parsons, R.C. "Determination of preferred planes of weakness in geological materials Part II"; FMP 66/152-MRL.

4. Parsons, R.C., Cook, S. "Photo electric scanner for the counting of discontinuities on rock surfaces"; MRC IR 67/69.

5. Parsons, R.C. "Fracture systems in the host granites at Newfoundland Fluorspar operations"; MRC IR 67/70.

6. Udd, J.E. "A study of fracture patterns at the Nordic Mine, Elliot Lake, Ontario"; MRC IR 68/36-ID.

7. Herget, G. "Structural investigations of 167 and 228 pillars at McLeod Mine, Algoma Ore Properties, Wawa"; MRC IR 68/74-ID.

8. Eisbacher, G.H., Bielenstein H.U. "The Flack Lake depression (41 J/10)"; MRC IR 69/18-ID.

9. Eisbacher, G., Bielenstein, H.U. "Tectonic interpretation of elastic strain recovery measurements at Elliot Lake"; MRC IR 69/32-ID.

10. Coates, D.F. "Geological structural effects in rock mechanics"; MRC IR 69/44-ID.

11. Herget, G. "Determination of the pre-mining stress field at George W. MacLeod Mine, Wawa, based on structural investigations and stress measurements. (Progress report)"; MRC IR 69/46-ID.

12. Eisbacher, G.H., Bielenstein H.U. "Interpretation of elastic-strain-recovery measurements near Elliot Lake, Ontario"; MRC IR 69/50-ID.

13. Bielenstein, H.U., Eisbacher, G.H. "In situ stress determinations and tectonic fabric at Elliot Lake, Ontario"; MRC IR 70/34-ID.

14. Eisbacher, G.H., Bielenstein, H.U. "Elastic-strain-recovery in proterozoic rocks near Elliot Lake, Ontario"; MRC IR 70/35-ID.

15. Herget, G. "Surveys of geologic discontinuities in connection with the mechanical behaviour of rock masses"; MRC IR 70/38-ID.

16. Herget, G. "The pre-mining stress field of the George W. MacLeod Mine, based on tectonic analysis"; MRC IR 70/43-ID.

17. Bielenstein, H.U. "Deformation of a single thrust sheet: an analysis of the mesoscopic fabric"; MRC IR 71/40-ID.

18. Herget, G. "Tectonic fabric and current stress field at an iron mine in the Lake Superior region"; MRC IR 71/83-ID.
(Published Proc 24 Int Geol Congr Montreal. Section 13, p. 241-248).

19. Herget, G., Miles, P. "Mining research at the Kidd Creek Mine, Timmins; Part I: Geotechnical investigations"; MRC IR 74/33.

20. Herget, G. "Rock mass classification at Copper Cliff South Mine"; MRP/MRL 81/137(TR).

21. Arjang, B. "Geological structure at Stanleigh Mine in Elliot Lake - Progress Report"; MRP/MRL 83-22(TR).

22. Arjang, B. "Geological structure and hanging wall stability at New Quirke Mine in Elliot Lake - Progress Report"; MRP/MRL 83-23(TR).

23. Arjang, B. "Geological structure around the crown pillar at Selbaie Mine, Québec"; MRP/MRL 83-92(TR).

24. Arjang, B. "Rock mass characterization around the crown pillar at Selbaie Mine, Québec"; MRP/MRL 84-53(TR).

MODELLING (METHEMATICAL, PHYSICAL, COMPUTER)

1. Gyenge, M. "Development of low-modulus photoelastic model material, mirelite"; FMP 66/103-MRL.

2. Barron, K. "Computer program for theoretical analysis of stresses in a hollow cylindrical inclusion"; MRC IR 67/44.

3. Coates, D.F. "A computer program for checking input coordinates by plotting"; MRC IR 67/30.

4. Waranica, K., Coates, D.F. "A computer program for simulating the stress distribution around irregular mining openings in non-homogeneous ground subjected to gravitational and tectonic forces"; MRC IR 67/36.

5. Gyenge, M. "A computer program for calculating principal stresses in photoelasticity"; MRC IR 67/37.

6. Coates, D.F. "A computer program for calculating biaxial stresses from borehole strain cells"; MRC IR 67/52.

7. Yu, Y.S., Coates, D.F. "The testing of a finite element computer program for stress analysis"; MRC IR 68/2-LD.

8. Gyenge, M. "Development of photoelastic technique to solve gravitational stress distribution problems"; MRC IR 68/8-ID.

9. Kostak, B. "Models of block systems"; MRC IR 68/12-ID.

10. Yu, Y.S. "A modified computer program for checking input data by plotting for the finite element method of stress analysis"; MRC IR 68/15-LD

11. Coates, D.F. "Appraisal of modeling in the pillar loading project"; MRC IR 68/32-LD.

12. Kostak, B. "Preliminary model pillar testing"; MRC IR 68/38-ID.

13. Yu, Y.S., Coates, D. "Computer programmes for plotting principal stresses and displacements"; MRC IR 68/54-ID.

14. Gyenge, M., Coates, D.F. "A photoelastic trial to obtain stress concentration in pillars of a shallow underground opening"; MRC IR 68/59-LD.

15. Coates, D.F. "Deformation of pillars in inclined workings"; MRC IR 68/64-LD.

16. Barron, K. "Fracture initiation in and ultimate failure of brittle rocks Part I: Isotropic Rocks"; MRC IR 68/75-LD.

17. Yu, Y.S., Coates, D.F. "Development and use of computer programs for finite element analysis"; MRC IR 68/98-LD.

18. Coates, D.F. "Deformations and stresses in the roofs of broad stopes"; MRC IR 68/105-ID.

19. Barron, K. "The fracture of brittle rocks around mine excavations"; MRC IR 69/25-LD.

20. Coates, D.F. "The finite element method in rock mechanics"; MRC IR 69/54-ID.

21 Coates, D.F., Yu, Y.S. "Three-dimensional stress distributions around a cylindrical hole and anchor"; MRC IR 69/57-LD.

22. Kostak, B. "Photoelastic investigation of pillar models"; MRC IR 69/83-ID.

23. Barron, K. "Criteria for brittle fracture initiation in and ultimate failure of rocks and their application to fracture zone prediction"; MRC IR 69/98-LD.

24. Gray, W.M. "A Note on the calculation of the variance of a general function of several variables: accuracy of principal directions computed from strained-relief data"; MRC IR 69/104-LD.

25. Coates, D.F., Yu, Y.S. "A note on the stress concentrations at the end of a cylindrical hole"; MRC IR 69/122-LD.

26. Coates, D.F., Yu, Y.S. "Deformations and stresses in the roofs of broad, multi-reef stopes"; MRC IR 70/4-LD.

27. Toews, N.A., Yu, Y.S. "Documentation of a computer program for automatic mesh generation for the 2-D finite element program WILAX"; MRC IR 72/144.

28. Yu, Y.S., Toews, N., Hassan, G.A. "NAOS - Documentation of a computer program for finite element analysis of axisymmetric solids with arbitrary loadings"; MRC IR 72/152.

29. Gray, W.M., Toews, N.A. "Analysis of variance applied to data from overcoring tests for stress determination at the Sullivan Mine"; MRC IR 73/87.

30. Gray, W.M., Toews, N.A. "Analysis of variance applied to data obtained by means of a six-element Borehole deformation gauge for stress determination"; MRC IR 73/103.

31. Gray, W.M. "Models for analysing data from triaxial tests for shear resistance along fractures"; MRC IR 74/46.

32. Yu, Y.S. "Mining research at Kidd Creek Mine Part II: Finite element modelling"; MRC IR 74/58.

33. Yu, Y.S. "Mining research at Kidd Creek Mine, Timmins Part III: The effect of the removal of the crown pillar on the stress re-distribution in the pit walls"; MRC IR 74/91.

34. Morrison, H.D. "Documentation of a computer plotting program for interpreting results of the finite element"; MRC IR 74/100.

35. Toews, N.A., Yu, Y.S. "SAP2D Documentation 2-D linear and elastic finite element computer system"; MRC IR 74/138.

36. Sage, R. "A research proposal for development of computer aided design techniques for underground mining Canada"; MRC IR 74/147.

37. Toews, N.A., Yu, Y.S., Granz, R. "Documentation of GEN3D (A 3-D mesh generating program for SAP3D)"; MRP/MRL 75-89

38. Yu, Y.S. "Mining research at the Kidd Creek Mine, Timmins - Part IV; The effect of residual tectonic stresses on stability of the excavations"; MRP/MRL 75-99

39. Toews, N.A., Yu, Y.S. "SAP2D Documentation (1975 Version) - 2-D linear elastic finite element computer system"; MRP/MRL 75-109(TR)

40. Toews, N.A., Yu, Y.S. "Stress and displacement errors introduced by truncating large massive structures - Part I - Cylindrical opening under uniform loading"; MRP/MRL 75-116(TR)

41. Yu, Y.S. "Finite element modelling at Kidd Creek Mine, Timmins, Ontario"; MRP/MRL 76-70(OP)

42. Toews, N.A., Wong, A.S. "Documentation of calcomp compatible printer plot routines"; MRP/MRL 77-129.

43. Yu, Y.S., Toews, N.A. "EPFE Documentation (1977) - A two-dimensional elastic-plastic finite element stress analysis computer system"; MRP/MRL 77-144.

44. Toews, N.A., Wong, A.S., Yu, Y.S. "BIT 3D Boundary integral three-dimensional elastostatic solver"; MRP/MRL 78-67(TR).

45. Yu, Y.S. "A summary of finite element stress analysis for the Kidd Creek Mine, Timmins, Ontario"; MRP/MRL 78-92(TR).

46. Toews, N., Wong, A.S., Rebstock, J., Yu, Y.S. "PRSPLT documentation"; MRP/MRL 79-82(TR).

47. Yu, Y.S., Toews, N.A. "Three-dimensional stress distribution in a pillar for a typical room-and-pillar system of mining"; MRP/MRL 79-102(TR).

48. Yu, Y.S., Toews, N.A. "DRUKGEN and DRUKSTA - Documentation of interfaced programs for the nonlinear finite element program DRUKPRA"; MRP/MRL 80-96(TR).

49. Yu, Y.S., Toews, N.A. "Implementation of a compressible pillar model with a MINTAB program"; MRP/MRL 80-98(TR).

50. Yu, Y.S., Toews, N.A., Wong, A.S. "Stress/displacement calculation with the MINTAB program; MRP/MRL 81-34(TR).

51. Yu, Y.S., Toews, N.A., Wong, A.S. "Implementation of backfill with the MINTAB program"; MRP/MRL 81-62(TR).

52. Yu, Y.S., Toews, N.A. "CNTPLT documentation - A post-processor for interpreting MINTAB (Version 1.0, 1981) results"; MRP/MRL 81-130(TR).

53. Gangal, M.K. "Boundary element program for stress analysis around underground excavations"; MRP/MRL 83-8(TR).

54. Yu. Y.S., Toews, N.A., Wong, A.S. "Mintab user's guide - A mining simulator for determining the elastic response of strata surrounding tabular mining excavations (ASCII 77 Version 4.0, 1982)"; MRP/MRL 83-25(TR).

55. Toews, N.A., Yu, Y.S., Wong, A.S. "Documentation of computer program digitize (to store digitizer data on the VAX)"; MRP/MRL 83-81(INT).

56. Toews, N.A., Wong, A.S., Yu, Y.S. "DATAPLOT update"; MRP/MRL 83-83(INT).

57. Vongpaisal, S., Toews, N.A., Yu, Y.S. "Prediction of pillar load - Phase I - Underground service/garage stations"; MRP/MRL 84-45(TR).

58. Toews, N.A., Yu, Y.S., Vongpaisal, S., Wong, A.S. "Documentation of DRUKPLT (VAX/VMS Version)"; MRP/MRL 84-81(INT).

SUPPORT SYSTEMS

1. St. Louis, A.V. "Installation and test results of the vibrating wire rock-bolt dynamometers used at the Crow's Nest Pass Coal Company, Michel, B.C."; FMP 64/33-MRL.

2. Coates, D.F., Dwarkin, L.M. "Rock bolt trials at Michel, The Crow's Nest Pass Coal Company Limited"; FMP 64/66-MRL.

3. Coates, D.F., Dwarkin, L.M. "Roof butting effectiveness at Michel"; CIM Bull Vol 60; No 659; Mar 1967.

4. van Heerden, W.L. "Laboratory roof bolt studies"; FMP 66/162-MRL.

5. St. Louis, A.V. "A new approach in roof bolt design"; MRC IR 68/14-ID.

6. Ground Control Research Group. "Tentative design specification for roof bolting as temporary support"; MRC IR 68/56-LD.

7. Ground Control Research Group. "Rock bolting developments from research in various mines"; MRC IR 68/111-LD.

8. Coates, D.F., Cochrane, T.S. "Development of design specifications for rock bolting from research in Canadian mines"; MRC IR 69/52-LD (CMJ March 1971; p. 37; R 224.).

9. Gray, W.M. "Assessment of an idea for supporting wet concrete magnetically against the back"; MRC IR 69/85-LD.

10. Coates, D.F., Yu, Y.S. "Rock anchor design mechanics"; MRC IR 70/63-ID.

11. Gyenge, M., Coates, D.F. "Model testing on the support mechanism of thin linings"; MRC IR 72/23.

12. Zahary, G., Unrug, K. "Reinforced concrete as a shaft lining"; MRC IR 72/86.

13. Gyenge, M., Coates, D.F. "The support mechanism of sprayed thin lining"; MRC IR 72/106.
(Publ M37-1873. Nov 1973).

14. Yu, Y.S. "A study of stress distribution around a mining opening with roof-truss support system"; MRC IR 72/120.

15. Muir, W.G., Hedley, D.G.F. "Strata reinforcement with cable bolts"; MRC IR 72/126.

16. Coates, D.F., Sage, R. "Rock anchors in mining (A guide for their utilization and installation) TB181"; MRC IR 73/79.

17. Lee, H.H., Hedley, D.G.F. "Long-term monitoring load on roof bolts and cable bolts"; MRC IR 74/119.

18. Gyenge, M. "Preliminary proposal on grouting field experiments"; MRP/MRL 78-80(TR).

19. Hedley, D.G.F. "Technical note: Effect of plate design on rock bolt performance"; MRP/MRL 81-128(TR).

20. Gyenge, M. "Evaluation of support systems: Rock bolting - First interim report"; MRP/MRL 82-1(TR).

21. Gyenge, M. "Parametric study of the variables of support design"; MRP/MRL 83-67(TR).

22. Gyenge, M. "Design aspects of bolting system"; MRP/MRL 83-95(J).

ROOM-AND-PILLAR MINING (ELLIOT LAKE)

1. Coates, D.F. and Ignatieff, A. "Prediction and measurement of pillar stresses"; FMP 65/174-MRL.

2. Coates, D.F., Grant, F. "Stress measurements at Elliot Lake"; CIM Bull Vol 59, No 649, May 1966.

3. Ground Control Research Group. "Ground movement associated with pillar removal"; MRC IR 70/102-ID.

4. Hedley, D.G.F., Grant, F. "Slope and pillar design for the Elliot Lake uranium mines"; MRC IR 71/95.
(CIM vol 65; pp 121-128; 1972).

5. Hedley, D.G.F., Herget, G., Zorychta, H. "Test proposal for a large span opening at the Quirke I Mine of Rio Algom Mines Limited"; MRC IR 71/97.

6. Coates, D.F., Bielenstein, H.V., Hedley, D.G.F. "A rock mechanics case history of Elliot Lake"; IR 72/53.

7. Hedley, D.G.F. "Survey of factors affecting stope-and-pillar design"; IR 72/77.

8. Coates, D.F. "Variance of pillar stresses at Elliot Lake"; IR 72/82.

9. Hedley, D.G.F. "Roof classification at the New Quirke Mine, Rio Algom Mines Ltd"; IR 72/151.

10. Coates, D.F. "Probability of failure in pillar design"; IR 73/38.

11. Coates, D.G. "Probability of pillar failure at Elliot Lake"; IR 73/83.

12. Hedley,D.G.F. "Effect of geological factors on stope-and-pillar layouts in an Elliot Lake uranium mine"; IR 74/20. (CIM Bulletin; March 1975).

13. Lee, H.H., Zahary, G. "Calculation of room and pillar dimensions for different pillar shapes"; IR 74/53.

14. Zahary, G. "Alternative room-and-pillar mining patterns"; MR 74/136.

15. Hedley, D.G.F. "Options for pillar recovery at the Raocin Mine"; MRP/MRL 77-25.

16. Yu, Y.S., Hedley, D.G.F. "A model for multi-seam mining of the Denison Mine at Elliot Lake, Ont"; MRP/MRL 77-127.

17. Hedley, D.G.F. "Design guidelines for multi-seam mining at Elliot Lake"; MRP/MRL 78-28. (CANMET Report #78-9).

18. Budavari, S. "A study of deep-level mining and ground control methods at the Elliot Lake Uranium Mines". Contract Report, May 1978.

19. Yu, Y.S. "Some clarification for pillar strength formulae developed for the Elliot Lake Mines"; MRP/MRL 79-69(TR).

20. Hedley, D.G.F., Hambley D.F., Morgan, G. "Regional stability in the Elliot Lake Mines, Part 1: The Denison-Quirke boundary"; MRP/MRL 79-71(TR).

21. Hedley, D.G.F., Morgan, G., Hambley, D.F. "Regional stability in the Elliot Lake Mines, Part 2: The Denison-panel boundary"; MRP/MRL 79-93(TR).

22. Hedley, D.G.F., Morgan, G., Hambley, D.F. "Regional stability in the Elliot Lake Mines, Part 3: Pillar recovery at Denison Mine"; MRP/MRL 79-94(TR).

23. Hedley, D.G.F., Muir, W.B., Yu, Y.S. "Regional stability in the Elliot Lake Mines, Part 4 : Pillar removal at the Nordic Mine"; MRP/MRL 80-4(TR).

24. Hambley, D.F., Hedley, D.G.F., Morgan, G.M. "Use of analog and computer models in the Elliot Lake Uranium Mines"; MRP/MRL 80-5(OP).

25. Hedley, D.G.F. "Bibliography of rock mechanics research in the Elliot Lake Mines"; MRP/MRL 80-89(LS).

26. Hedley, D.G.F. "Possible effects of tailings disposal in Quirke Lake on mine stability"; MRP/MRL 81-27(TR).

27. Muir, B., Morgan, G., Hedley, D.G.F. "Evaluation of pillar stability in sill pillar recovery at Quirke Mine"; MRP/MRL 81-125(TR).

28. Hedley, D.G.F., Gangal, M., Morgan, G. "Effect of pillar orientation on stability"; MRP/MRL 83-63(TR).

CUT-AND-FILL INCLUDING BACKFILL TESTING

1. Barron, K., Cross, H.E. "A photoelastic model investigation of stresses around cut and fill stopes, based on the McIntyre Mine configuration"; FMP 64/25-MRL.

2. Yu, Y.S. "Notes on hydraulic backfilling"; FMP 66/163-MRL.

3. Coates, D.F., Yu, Y.S. "Analysis of grading effects on hydraulic and consolidated fill"; MRC IR 67/54.

4. Romaniuk, A.S. "Backfill for underground mining operations, Part I. Backfill techniques used outside Canada"; MRC IR 67/2.

5. Coates, D.F., Yu, Y. "Tentative specifications - test for percolation rate or coefficient of permeability of fill"; MRC IR 67/15. (TB 101, April 1968).

6. Zahary, G. "A proposal for field research on backfill"; MRC IR 68/102-ID.

7. Coates, D.F., Yu, Y.S. "Analysis of grading effects on hydraulic and consolidated fill"; MRC IR 68/106-LD.

8. Zahary, G. "Effect of backfill on a stope wall"; MRC IR 69/45-ID.

9. Zahary, G. "Fill research - progress report no 1"; MRC IR 70/13-ID.

10. Gyenge, M. "Optimization study of hydraulic fill system"; MRC IR 70/19-ID.

11. Gyenge, M., Coates, D.F. "Mine fill system design based on optimization"; MRC IR 70/26-LD.

12. Coates, D.F., Emery, J.R. "Introduction to a session on cemented backfill"; MRC IR 70/47-ID.

13. Zahary, G. "Results - fill pressure measurements in a cut-and-fill stope"; MRC IR 72/119.

14. Waterfield, M.C. "A review of fill mining practice"; MRC IR 73/95.

15. Zahary, G. "First progress report - subcommittee on fill"; MRC IR 73/140.

16. Khomychov, V.I., Zahary, G. "Laboratory study of stabilized mine fill"; MRC IR 74/106.

17. de Korompay, V. "Review of hydraulic transportation system for mine backfill"; MRC IR 74/118.

18. Thomas, E.G. "A proposed fill research program for the Canadian mining industry"; MRP/MRL 75-38.

19. de Korompay, V. "Determination of the in situ seepage velocity of deposited backfill by the electrical resistivity method"; MRP/MRL 75-61(TR).

20. de Korompay, V. "Determination of the Hazen-Williams roughness coefficient for slurry transportation boreholes"; MRP/MRL 75-91.

21. de Korompay, V. "Determination of the in situ permeability of Falconbridge Mines hydraulic backfill"; MRP/MRL 76-77.

22. Just, G.D. "One-dimensional compression testing of granular material"; MRP/MRL 76-112(TR).

23. de Korompay, V. "Tube permeater to measure the in situ permeability of deposited hydraulic backfills & waste materials"; MRP/MRL 77-3.

24. Herget, G., de Korompay, V. "In situ drainage properties of hydraulic backfill"; MRP/MRL 78-3(OP). (Publication CIMM).

25. Herget, G. "Strata control with backfill"; MRP/MRL 81-78(TR).

26. Shama, R., Chodola, G., Herget, G. "Pressure monitoring of mine backfill"; MRP/MRL 81-103(TR).

27. Gangal, M.K. "A numerical model for predicting the free standing height of backfill"; MRP/MRL 81-129(TR).

28. Swan, G. "Compressibility characteristics of a cemented rockfill"; MRP/MRL 83-60(OP,J).

29. Swan, G., Vaillancourt, G. "In situ backfill testing with a borehole dilatometer"; MRP/MRL 83-64(TR).

30. Swan, G. "Laboratory testing of Les Mines Selbai rock and fill"; MRP/MRL 83-88(TR).

31. Hedley, D.G.F. "Utilization of backfill support in longitudinal cut-and-fill mining"; MRP/MRL 84-76(TR).

32. Swan, G. "A new approach to cemented backfill design"; MRP/MRL 84-73(J).

BULK MINING (SUDBURY, ALGOMA, KIDD CREEK)

1. Coates, D.F. and Grant, F. "Rock mechanics investigation 1963/64 at McLeod Mine, Algoma Ore Properties Division, Algoma Steel Corporation; FMP 65/36-MRL.

2. Zahary, G., Coates, D.F. "Rock mechanics investigation 1964-65 at MacLeod Mine, Algoma Ore Properties, Wawa, Ontario"; FMP 66/117-MRL.

3. Hedley, D.G.F. "A atudy of pillar deformation at MacLeod Mine, Algoma Ore Division"; MRC IR 68/30-ID.

4. Hedley, D., Zahary, G., Soderlund, H.W., Coates, D.F. "Underground measurements in a steeply dipping orebody"; MRC IR 68/100-LD (Pub in proc of 5th Canadian Rock Mechanics Symposium, Toronto; pp 105-125; December 1968).

5. Just, G.D. "Rock fragmentation and mining system design: Field data measurement and evaluation"; MRP/MRL 76-89.

6. Just, G.D. "Fragmented rock - physical characteristics and mining design"; MRP/MRL 76-110(TR).

7. Herget, G. "Guidelines for mining at a depth below 1000 m, a research proposal"; MRP/MRL 78-87(TR).

8. Hedley, D.G.F., Herget, G., Miles, P., Yu, Y.S. "Case history of CANMET's rock mechanics research at the Kidd Creek Mine"; MRP/MRL 79-47(R). (CANMET REPORT No 79-11)

9. Yu, Y.S. "Preliminary assessment of three bulk mining sequences of mining at depth - an elastic stress analysis"; MRP/MRL 80-36(TR).

10. Herget, G., Gyenge, M., Hedley, D.G., Larocque, G., Aliner, P., Yu, Y. "Modelling of 830 O/B Copper Cliff South project plan"; MRP/MRL 81-58(TR).

11. Yu, Y.S., Toews, N.A., Larocque, G.E., Hedley, D.G.F., Oliver, P., Herget, G. "Modelling of 830 orebody of Copper Cliff South Mine, INCO: Part 1 - A preliminary assessment using MINTAB"; MRP/MRL 81-100(TR).

12. Yu, Y.S., Toews, N.A. "Modelling of 830 orebody of Copper Cliff South Mines, INCO: Part 2 - A backfill trial"; MRP/MRL 81-117(TR).

13. Herget, G., Oliver, P., Gyenge, M., Yu, Y.S. "Strength of a mine pillar at Copper Cliff South Mine"; MRP/MRL 83-47(TR).

14. Mine-Met Consultants. "A feasibility study of new mining concepts at depth in Canadian base metal mines"; Contract Report March 1979.

15. Falconbridge Ltd. "Design of a bulk mining trial"; Contract Report Nov 1980.

16. Golder Associates. "Prediction of stable excavation spans for mining at depths below 1000 m in hardrock mines"; Contract Report, April 1981.

17. INCO Ltd. "Underground bulk mining blast design and blast vibration monitoring"; Oct 1981.

18. Falconbridge Ltd. "Stability and support in deep mines"; Contract Progress Report, March 1983.

ROCKBURSTS AND SEISMICITY

1. Cochrane, T.S., Carter, O.F. and Barron, K. "Studies of ground behaviour in a metal mine"; Int Strata Control Conf; New York; May 1964.

2. Parsons, R.C. "Influence of geological structure on burst areas in the Director Mine, Newfoundland Fluorspar Co Ltd St Lawrence, Nfld"; FMP 64/154-MRL.

3. Parsons, R.C. "Factors influencing bursting in the Director Mine, Newfoundland Fluorspar Co Ltd"; FMP 65/17-MRL.

4. Cochrane, T.S. "Preliminary investigations into rockburst conditions at Director Mine, Newfoundland Fluorspar Limited"; FMP 65/69-MRL.

5. Zawadski, W., St. Onge,J. "Field investigation at Director Mine, St Lawrence, Newfoundland, February 4 to March 25, 1966"; FMP 66/188-MRL.

6. Cochrane, T.S. "Results of rockburst investigations at Director Mine, St Lawrence, Newfoundland, February-March 1966"; MRC IR 67/7.

7. Coates, D.F., Dickhout, M. "Ground control in deep mining"; MRC IR 70/27-LD.

8. Zawadski, Wm. "Field study on the Robbins R41 raise boring machine at Director Mine, St Lawrence, Newfoundland"; MRC IR 70/88-ID.

9. Zahary, G. "Stresses in rock subject to bursting"; MRC IR 73/115.

10. Larocque, G. "Review of rockburst phenomena"; MRP/MRL 80-94(OP).

11. MacDonald, P. "Microseismic monitoring at New Quirke Mine"; MRP/MRL 83-14(TR).

12. MacDonald, P., Muppalaneni, S.N. "Microseismic monitoring in a uranium mine"; MRP/MRL 83-74(OP,J).

13. Hedley, D.G.F., Whitton, N. "Performance of bolting systems subject to rock bursts"; MRP/MRL 83-75(TR).

14. MacDonald, P. "Evaluation of a high frequency microseismic rock failure warning system in hardrock mines"; MRP/MRL 84-13(TR).

15. Hedley, D.G.F., Roxburgh, J.W., Muppalaneni, S.N. "A case history of rockbursts at Elliot Lake"; MRP/MRL 84-16(OP,J). (for pres & pub at the 2nd International Conf on Stability in Underground Mining, Lexington, Kentucky, August 1984).

16. Udd, J.E. "A proposal for a major research project on rockbursts"; MRP/MRL 84-84(TR).

TEXTBOOKS AND STATE-OF-THE-ART REVIEWS

1. Coates, D.F. "Rock mechanics principles"; Mines Branch Monograph 874; 1965; Revised 1981.

2. Coates, D.F. "Pillar loading, Part 1: Literature survey and new hypothesis"; Mines Branch Research Report R168; Oct 1965.

3. Coates, D.F. "Pillar loading, Part 2: Model studies"; Mines Branch Research Report R170; Dec 1965.

4. Coates, D.F. "Pillar loading, Part 3: Field measurements"; Mines Branch Research Report R180; 1966.

5. Coates, D.F. "Pillar loading, Part 4: Inclined workings"; Mines Branch Research Report, R193; 1966.

6. Gray, W.M. "Definitions of terms used in rock mechanics: Fundamental mechanics"; MRC IR 71-20, 1971.

7. Hedley, D.G.F. and Herget, G. "Rock mechanics and ground control"; United Nations Inter-Regional Seminar on Advanced Mining Technology, Ottawa, May 1973.

8. Coates, D.F. and Gyenge, M. "Incremental design in rock mechanics"; Mines Branch Monograph 880; July 1973.

9. Yu, Y.S. "Some solutions to problems in rock mechanics principles"; Mines Branch Monograph 874; 3rd Edition (1970); MRC IR 73-112.

10. Zahary, G. "Notes on rock mechanics and mine planning"; MRC IR 74-55.

11. Hedley, D.G.F. and Wilson, J. "Rock mechanics applications in Canadian mines"; CIM Bull, Vol 68, No 763; Nov 1975.

12. Hedley, D.G.F. "Underground mining methods in Canada"; World Mining Congress, Dusseldorf; June 1976.

13. Hedley, D.G.F. "A profile of Canadian base metal mines in the 1970's"; CANMET Report 78-28.

14. Singh, K.H. and Hedley, D.G.F. "Review of mining technology in Canada"; Conf Applic of Rock Mech to Cut-and-Fill Mining, Lulea, Sweden; June 1980.

15. Hedley, D.G.F., Larocque, G.E. and Cochrane, T.S. "Brief to the joint federal-provincial inquiry commission into safety in mines and milling plans in Ontario"; MRP/MRL 80-106.